

piercing ammunition being made in Sweden.

These were important but really only incremental steps. The slaughter in the streets goes on. But Mr. President, we may have some good news. An editorial in the March 1, 1995, edition of the Los Angeles Times describes a bold new initiative in Pasadena, CA, where the city council has adopted one of the first ordinances in the Nation restricting the sale of ammunition. I ask that this article be printed in the RECORD.

Gun dealers in Pasadena must now record not only their sales of guns, but also of ammunition. And why? Pasadena Chief of Police Jerry Oliver summed it up nicely when he said

In Pasadena tonight, at this very moment, it is easier to buy a box of 9-millimeter rounds than it is to buy a can of spray paint.

Last September, I noted on this floor that the city of Chicago had become the first municipality in the Nation to ban the sale of all handgun ammunition. Now Pasadena has taken steps to regulate the sale of bullets. This won't prevent buyers from going to neighboring Los Angeles to buy ammunition, but similar steps are now being considered in Los Angeles, and in nearby Azusa as well.

Mr. President, I hope the actions of Chicago and Pasadena represent a turning point in our thinking about this problem. I hope other cities and towns recognize the potential of ammunition control to bring about real progress in the fight against gun violence. I hope the States and the Federal Government will come around to this idea as well. We need a new approach, we need bold action, and we need it soon. Pasadena has the right idea. Let us hope the rest of the Nation is paying attention.

The article follows:

[From the Los Angeles Times, Mar. 1, 1995]

HOW DESPERATION BECOMES A TOOL

PRODDED BY EVER-RISING MAYHEM, PASADENA PASSES A LAW REGULATING BULLET SALES

Bravo to the members of the Pasadena City Council. By a vote of 5 to 2, the council adopted what is believed to be the nation's first municipal law restricting bullet sales.

Approval did not come easily, however. Emotions ran high: Ordinance supporters, outraged by street violence, verbally battled with gun enthusiasts who reject even the most reasonable restrictions. The vote did not occur until shortly before midnight, after five hours of debate. Dozens of backers and opponents of the ordinance offered impassioned testimony before a standing-room-only crowd. Tempers flared; one council member temporarily left the proceedings in angrily reacting to pro-ordinance comments by the police chief. Cheers and catcalls broke out often.

And what was all the fuss over? The new ordinance requires anyone buying bullets in Pasadena to provide identification showing proof of age and to complete a registration form listing the amount, brand and type of ammunition purchased.

The measure is intended to curtail sales of bullets to juveniles—such sales are already illegal but nonetheless widespread—and to provide police with information that may help link bullets found at a crime scene with suspects.

Pasadena has taken but the tiniest of steps with this ordinance. But it is a measure of the headlock in which the gun lobby has held federal, state and local lawmakers that even these tepid, sensible restrictions on bullet sales can be so strongly resisted as an infringement on the right of self-defense. After all, as Pasadena Police Chief Jerry Oliver noted at the start of the council meeting, "Tonight, it is easier to buy 9-millimeter ammunition than it is to buy a can of spray paint." That discrepancy is nuts.

The most powerful criticism of the new ordinance is that it may not be very effective. Pasadena kids and adults bent on violence may simply seek their bullets in nearby Glendale, Los Angeles or La Canada. Alone, Pasadena can realistically do little to reduce gun violence.

But the true worth of Pasadena's ordinance—its value as an example—was apparent even before its passage. Monday afternoon the Los Angeles City Council took the first steps to follow Pasadena's lead. The council's Public Safety Committee asked the city attorney to draft an ordinance patterned on Pasadena's. Then, on Tuesday, Azusa's police chief vowed to seek such an ordinance there.

If Los Angeles and Azusa—as we hope—pass bullet laws, more cities are sure to follow. Then, what began as, in part, a symbolic gesture reflecting the desperation of Pasadena's leaders to "do something" about gun crime will become a tough tool against criminals throughout this violence-weary region. ●

DISCOVERY OF THE TOP QUARK

● Mr. D'AMATO. Mr. President, I rise today to congratulate Dr. Paul D. Grannis and the New York State D-Zero collaboration members on the discovery of the Top Quark.

Dr. Grannis is a physicist at the State University of New York at Stony Brook and is a leader of an international collaboration of scientists working at Fermi National Accelerator Lab in Batavia, IL.

The D-Zero collaboration includes scientists from Brookhaven National Laboratory, Columbia University, New York University, and the University of Rochester as well as those from the State University of New York at Stony Brook. Scientists from Rockefeller University also participated in the discovery.

The discovery of the Top Quark is one of the most important achievements in high energy physics this decade. The Top is the last of six Quarks to be discovered and is an integral part of the Standard Model of modern physics. This Standard Model not only serves as the basis for our understanding of physics but defines the fundamental building blocks of the Universe.

Dr. Grannis has headed the D-Zero collaboration at Fermilab for over a decade. During this tenure he has committed to Illinois nearly every week while never failing to meet his commitment to academics and teaching in New York.

I commend him on his extraordinary commitment—which I believe exemplifies the high standard of dedication to both research and education in New

York. It is a great credit to New York State institutions that their leadership has culminated in this exciting discovery.

Again, I congratulate Dr. Grannis on this tremendous achievement and wish him continued success. Dr. Grannis lives in Stony Brook, NY with his wife Barbara and has four children: Jennifer, Eliza, Helena, and David.

Mr. President, I ask that the March 3, 1995, New York Times article by Malcolm W. Browne describing this discovery be included in the RECORD following the text of these remarks.

[From the New York Times, Mar. 2, 1995]

ELUSIVE ATOMIC PARTICLE FOUND BY PHYSICISTS

(By Malcolm W. Browne)

BATAVIA, IL., March 2—Culminating nearly a decade of intense effort, two rival groups of physicists announced today that they had found the elusive top quark—an ephemeral building block of matter that probably holds clues to some of the ultimate riddles of existence.

The announcements brought sustained applause and a barrage of questions from an overflow audience of physicists at the Fermi National Accelerator Laboratory, where the work was done. Fermilab has the world's most powerful particle accelerator.

The two competing scientific teams, each with about 450 scientists and each using a separate detection system, reported that after a long chase in which there had been several false sightings of the top quark, this monstrously heavy but elusive particle has finally been cornered and measured. The results of the two groups' independent measurements differed somewhat, but when margins of error were taken into account, the scientists agreed that the results were consistent.

One of the teams, the CDF Collaboration (standing for Collider Detector at Fermilab) reported last April that it had found evidence of the quark's existence. But at the time, the group lacked enough statistical evidence to claim discovery, and the competing group, the D0 (for D-Zero) Collaboration, which had even less evidence of its own, branded the CDF announcement as premature.

The achievement claimed today by both teams leaves virtually no room for doubt, however, and the discovery was hailed as a landmark in science. Hazel O'Leary, who as Secretary of Energy heads the Federal agency providing most of the money for research at Fermilab, called the discovery a "major contribution to human understanding of the fundamentals of the universe."

The finding confirms a prediction based on a theory known as the Standard Model that nature has provided the universe with six types of quarks; the other five, the up, down, strange, charm and bottom quarks had all been known or discovered by 1977. Since the infancy of the universe shortly after the Big Bang—estimated at 10 billion to 20 billion years ago—only the up and down quarks have survived in nature, and the protons and neutrons that make up the nuclei of all atoms are built from combinations of these two quarks; the other quarks disappeared from the observed universe, but have been recreated by modern particle accelerators.

Dr. Leon M. Lederman, a winner of the Nobel Prize in Physics and the former director of Fermilab, said at today's meeting that he doubted there could be any more quark types but that "we know there's a lot of dark matter out in the universe that we can't identify."

"We're still in for a lot of surprises," he added.

But more important than merely completing the table of quarks predicted by theory, the top quark may now begin to shed light on a deep philosophical question: everything in the universe, from the most distant galaxy to a rose petal, is made of quarks. Were the masses and other properties of these particles determined by random chance, or by some fundamental unifying plan? If so, what is that plan, and how might gravity, the least understood of the four forces of nature, be related to it?

"This monster, compared with all the other quarks, is like a big cowbird's egg in a nest of little sparrow eggs," said Dr. Paul D. Grannis, a leader of the DO group. "It's so peculiar it must hold clues to some important new physics."

"The top quark has turned out to be so heavy," added Dr. John Peoples, director of Fermilab, "that it's kind of a laboratory in itself, from which many new experiments will certainly yield important insights."

It may be, scientists believe, that quarks (and the higher forms of matter they make up) are endowed with mass by interacting with an all-pervading universal "field," with which they communicate through a hypothetical particle called the Higgs boson. To find and measure the Higgs boson would be as exciting for a physicist as the creation of life in a test tube would be for a biologist.

One of the questions high-energy physicists regard as fundamental is whether there is a single type of Higgs boson, or several types. Theory predicts that if it is possible to accurately measure the masses of two known particles—the top quarks and the W particles that transmit the weak nuclear force—it will be possible to determine whether there are one or more than one Higgs bosons.

"We're so elated by the discovery of the top quark that we haven't yet begun to sift all the data," said Dr. Boaz Klima of Fermilab, one of the leaders of the successful search. "But this particle is so astonishingly heavy that its decay may give us hints of a lot of other things, perhaps even of supersymmetric particles."

The quest for supersymmetric particles by the world's most powerful accelerators during the last decade has failed to turn up any evidence that they exist, but according to some theories, they may be so heavy they are beyond reach of present-day accelerators. If supersymmetric particles could be shown to exist, they might offer scientists a tool for learning how gravity is related to the other forces of nature: the electromagnetic force and the strong and weak nuclear forces.

Even when trillions of protons and antiprotons are made to collide in Fermilab's huge accelerator at combined energies of two trillion electron-volts, the creation of top quarks by the miniature fireballs remains a rare event.

Dr. Grannis of the DO collaboration said today that his group, which has been running its detector on and off since 1992, has found 17 collisions resulting in evidence of the creation of a top quark. The team was able to calculate the mass of the particle as 199 billion electron-volts, give or take about 30 billion electron-volts. (Particle physicists measure mass in terms of its energy equivalent, because the units are more practical. Einstein's famous equation $E=mc^2$ defines the equivalency of mass and energy.)

For their part, according to Dr. William Carithers Jr., a leader of the rival CDF Collaboration, two separate counting techniques using the CDF detector have turned up a total of about 21 top quark events. The group calculates the mass of the top quark as

about 176 billion electron-volts, give or take about 13 billion.

These results, the competing teams say, are in reasonably close agreement. At any rate, they agree that they have found the quark, and that there is only one chance in about one million that the results could have been caused by anything besides the decays of pairs of top and antitop quarks.

One of the main difficulties in identifying the top quark is that it cannot be seen directly. When one is created from the immense pool of energy formed in the collisions of protons and antiprotons accelerated by Fermilab's Tevatron, its lifetime is so brief that no detector could sense it. But the top quark disintegrates into hundreds of daughter particles, which in turn decay into cascades of other particles.

From the patterns of "jets," particle types and other characteristics of these decays, theorists have learned to identify the parent particles like the top quark which cannot be detected directly. A jet is a spray of particles moving in the same general direction away from a collision.

High-energy physics is expensive. The Fermilab Tevatron accelerator, a ring of superconducting magnets four miles in circumference, cost about \$250 million to build, and each of the two detectors built into the accelerator cost about \$60 million. An upgrade of the Tevatron called a main injector, costing \$228 million, is scheduled for completion by 1999.

The Superconducting Supercollider, a project that would have been Fermilab's successor, would have cost more than \$8 billion if Congress had not canceled it last year. For the foreseeable future, Fermilab will remain America's most powerful particle accelerator, and scientists say that the machine has at least 15 more years of useful life.

The stakes for the high-energy physics community are enormous, in terms of job security, the risks of failure and the promise of great prestige for leaders of successful experiments. Competition between physicists is often intense and sometimes bitter.

The CDF and D0 detector collaborations have gone to great lengths to avoid even looking at each others' experiments—a policy that persisted even today minutes before their joint seminar began.

"We know that some of the younger physicists on both sides have been exchanging pirated copies of our reports, but we've tried to suppress such exchanges," one physicist said. "Of course there is friction, but that's a healthy aspect of science. This way, we know that our results are in no way influenced by those of our competitors, and when both our versions of the top quark are published side by side, scientists will be able to judge for themselves."

Despite a joking undertone of bickering between the two collaborations, which include scientists from a dozen nations, a holiday mood today eclipsed old rivalries and the collective anxiety about future financing of high-energy physics.

"We're ecstatic about this discovery," Dr. Peoples said. "Non-scientists often ask me what the point of all this may be. I say it's important because it makes the universe knowable, in the same sense that our discovery of DNA has made the nature of life knowable. We have a long, long way to go, but it's one of the most intellectually satisfying pursuits there is."●

HOMICIDES BY GUNSHOT IN NEW YORK CITY

● Mr. MOYNIHAN. Mr. President, I rise today, as I have done each week of the 104th Congress, to announce to the Sen-

ate that during the past week, 13 people were murdered by gunshot in New York City, bringing this year's total to 120.●

MEASURE READ FOR THE FIRST TIME—H.R. 956

Mr. DOLE. Mr. President, I inquire of the Chair if H.R. 956 has arrived from the House of Representatives.

The PRESIDING OFFICER. The Senator is correct.

Mr. DOLE. Therefore, I ask for its first reading.

The PRESIDING OFFICER. The clerk will read the bill for the first time.

The legislative clerk read as follows:

A bill (H.R. 956) to establish legal standards and procedures for product liability litigation, and for other purposes.

Mr. DOLE. Mr. President, I now ask for its second reading.

Mr. GLENN. Mr. President, I object.

The PRESIDING OFFICER. Objection is heard. The bill will be read for the second time on the next legislative day.

ORDERS FOR WEDNESDAY, MARCH 15, 1995

Mr. DOLE. Mr. President, I ask unanimous consent that when the Senate completes its business today, it stand in adjournment until the hour of 9:30 a.m. on Wednesday, March 15, 1995; that following the prayer, the Journal of proceedings be deemed approved to date, no resolutions come over under the rule, the call of the calendar be dispensed with, the morning hour be deemed to have expired, and the time for the two leaders reserved for their use later in the day. I further ask that the Senate then immediately resume consideration of H.R. 889, the supplemental appropriations bill, and at that point there be 1 hour for debate on the Kassebaum amendment, to be divided equally between Senators KASSEBAUM and KENNEDY.

The PRESIDING OFFICER. Without objection, it is so ordered.

PROGRAM

Mr. DOLE. For the information of all Senators, at 10:30 a.m. on tomorrow, Wednesday, two back-to-back votes will occur, the first being the cloture vote on the Kassebaum amendment, to be followed immediately by a vote on adoption of the unfunded mandates conference report, and following those two votes the Senate will resume consideration of the supplemental appropriations bill. Therefore, additional votes will occur and a late session can be anticipated.

ADJOURNMENT UNTIL 9:30 A.M. TOMORROW

Mr. DOLE. If there is no further business to come before the Senate, I now